REVOX

Re:source

Multi Media Module

MMM

Dominating Entertainment.
Revox of Switzerland.

MULTI MEDIA MODULE MMM

The Program Director
As the name suggests, you won't just have access to a wealth of storage media. With Internet Radio, you will also have access to the whole world. The days are gone when Program directors decided what you could listen to and then subjected you to intrusive advertising and traffic reports as well. Now, you are your own Program director. You can select your own music genre of choice and listen to broadcasts at a time that suits you.

The Language Trainer
Or how would it be if, just ahead of your holiday, you could listen again to the language of the country you are going to visit? No problem with Internet Radio. First select the continent and then the country and before you know it, Spanish, Creole or French will be coming at you out of the "ether".

The iPod Connection
Your MMM will get on very well with your iPod. Just connect it to the MMM and using your Revox equipment, you can dive into the audiophile world offered by this clever little box of tricks.

The Memory Stick
When connected to the USB socket, any memory stick and any USB hard disc* can make its contribution to the media diversity of the MMM.

The Music Folder
The MMM brings order into you favourite collection of CDs. Just pack all the tracks that make up your collection onto a network disc in the highest quality and then browse through them at your leisure, looking for long-lost tracks or rediscovering some old favourites. No more looking for CDs that have been put back into the wrong box!

The Multiroom Factor
Many of your friends will also be comfortable in the world of Internet Radio and will appreciate a network player. But the MMM isn't just at your service in the main room but in every other room that your Multiroom system is connected to. And that could be as many as 32!

* with FAT16/32 formatting

INSTALLATION

The Multi Media Module is equipped with the latest electronics and should be handled with care.

Before you install the card, the M51/ M10 must be switched off and separated from the power supply, by plugging the unit out.

M51 Installation

The MMM can be operated in slots 1 - 6. The only exception is Slot 7, next to the speaker connections, as this is reserved for the 5.1 Decoder module.

! **For loading reasons, only one MMM should be installed in an M51.**

M10 Installation

The MMM can be operated in slots 1 - 8 or A 1 - 2. Slots A1 and A2 should only be fitted with second generation modules, like the MMM, that have the following symbol on them: $\boxed{G^2}$

! **Up to 4 MMMs can be installed in parallel in an M10.**

Loosen the two screws with the TORX screwdriver supplied and remove the blanking plate.

Before removing the MMM module from its packaging, you should make sure that you are not statically charged. This could cause a damaging discharge of voltage when you touch the module. You should get rid of any static charge by touching an earthed metal object like a radiator, for example.

Remove the MMM from its packaging and feed it into its plug-in position. The two bars inside the M51/ M10 are the mechanical guides for you to use.

The lettering on the MMM plug-in card must be on top. Shortly before the plug-in card is fully locked into position in its slot, you will feel a mechanical resistance, caused by the bus board contact strip. Push the MMM fully in by applying pressure in the area of the two screw holes and fix the card in place with both screws.

All further steps for registering the new module are carried out automatically the next time you switch on.

CONNECTION PANEL
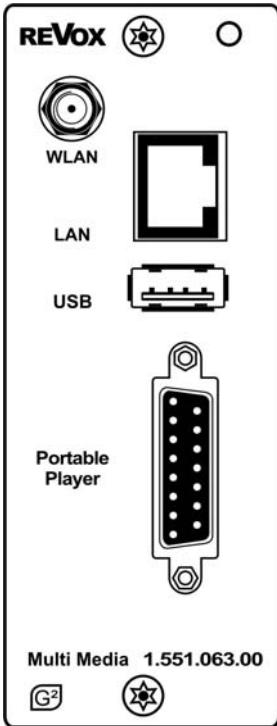
► **WLAN**

Connection for the WLAN aerial included with the accessories. The aerial must be installed to set up data communication to the MMM using a wireless LAN.
The WLAN connection is deactivated if a LAN connection is established.

► **LAN**

RJ45 connector for a LAN router in the network.

The WLAN connection is deactivated as soon as a LAN connection is established.

► **USB**[1]

USB A connection for an external USB mass storage (ext. USB hard disc with its own power supply, USB memory stick) that is formatted with a FAT16 or FAT32 file system.

[1] The USB storage may not exceed the maximum power consumption as defined by USB specifications. You should only use USB hard discs with their own power supply or memory sticks.

► **Portable Player**[2]
Sub-D 15connector for an iPod. There are 3 options for establishing the connection to the iPod:

1) Direct to the iPod using the adapter cable (supplied)

2) Using the Revox iPod Docking station (not supplied)

3) Using the MMM Enhancer for large distances between the MMM and the iPod or the iPod Docking station. (not included)

[2] **Charging the iPod battery**
Your iPod's battery is charged up while it is being used. No charging occurs however, while the M10/ M51 is in standby mode. Permanent charging is possible using the optional Revox Docking station that will be available in 2009.

5

Important advice

The following description for the cabling and the setup makes the assumption that there is a functioning network with router available and operational.

If you have any questions about the setup and configuration of your network or Internet access, please refer to your System administrator or an IT specialist of your choosing.

WLAN Wireless communication

An access point is required for the wireless communication between the MMM and the router. This can be an external unit or it can be integrated in the WLAN router.

Internet Radio

If you want to use the MMM to receive Internet radio, there must be a broadband Internet access to the router. Setting up the Internet access may involve further costs. The management and use of the Revox Internet Radio Portal is free-of-charge and already included in the purchase price.

Glossary 📖
NETWORK TERMINOLOGY

General

The network switch ensures the correct connections between the individual components. In order to make this possible, each device within a network must be capable of being uniquely identified. Each component therefore, is given its own address, the so-called IP address. The IP address is made up four blocks of numbers, each of which can contain up to three digits. These blocks of numbers are separated by a full stop, e.g. 192.168.1.1.

Each of the individual blocks of digits can have a value between 1 and 254. The values 0 and 255 are in part reserved for special functions and therefore shouldn't be used. In order to ensure a secure function of your network, addresses from the pre-defined range should be used, i.e.: fundamentally, the first two blocks should be 192.168.xxx.xxx; the third block can be selected from the values in the range mentioned above (must be the same for all the devices within a network however) and the fourth block should be used to differentiate each device,

e.g.:   MMM   192.168.001.001
           NAS: 192.168.001.002
           PC: 192.168.001.003

If you don't just want to use devices within the local network but also music sources from the Internet (Internet radio), the MMM must have the possibility of being able to access the Internet. This can be achieved, for example, through a router with a connection to a DSL network. This router is also a part of the network and will be assigned its own IP address. In order to enable this connection to

the outside world actually to be established, the MMM must additionally be informed of the address of the router (Gateway).

It must be ensured that the first three blocks of the Device IP, the Gateway IP and the DNS 1 are within the same address range, e.g. 192.168.0.xxx. The fourth block assigns a unique address ("house number") to the components in the local network. This number may only occur once within the local network. The Device IP mask should always be given the address 255.255.255.0.

DNS

The **D**omain **N**ame **S**ystem (DNS) is one of the most important services in the Internet. Its main task is that of converting Internet address like www.revox.de for example, into its corresponding IP address. As a rule, the router in home networks fulfils the function of the DNS.

If you should decide for the manual network configuration (without DHCP), just enter the address of your router as the DNS address during network configuration.

LAN

Local **A**rea **N**etwork
Local cabled network
A LAN connection to the MMM is the most fault-tolerant and problem free transmission technology, which offers much more security against eavesdropping than WLANs or Power LANs.

Gateway

The computer or router in your network through which the data traffic with the world outside your network, i.e. the Internet is handled.

Client

Network device that draws data out of the network, decodes it and converts it for example, into analogue music signals, which then can be played through amplifiers and speakers. Streaming clients also contain functions for displaying media content and for navigating in the Internet or on servers.

DHCP

DHCP is an abbreviation for **D**ynamic **H**ost **C**onfiguration **P**rotocol. DHCP is primarily used to enable clients to fetch their network configuration automatically from a server or router.
The **MMM** supports DHCP.

IP Address

Network address. Each device in the network needs an IP address through which it can be reached and uniquely identified. Network addresses may not occur twice. This is important if network addresses are assigned manually. If addresses are issued in your network through DHCP, you don't need to worry about the IP address assignment as the DHCL server automatically handles the question of address management.

MAC Address

The MAC address (**M**edia **A**ccess **C**ontrol) is the unique hardware address that is used for the unambiguous identification of the device in the network.
With the MMM, the MAC address can either be read out in Setup on Page #1 or alternatively, if it has not yet been installed, from the MAC sticker on the back of the module.

NAS

Network **A**ttached **S**torage. As a rule, this is a storage device with a very large capacity > 500 GB, which other devices can access. If the NAS server contains an UPnP-AV server service, the MMM can access and play media files that are stored on the NAS.

Power Line – LAN

With the Power Line LAN, data is transmitted through the existing power cable network. So-called Power Line Modems are required on the transmitter and receiver side. As a rule, Power Line LANs offer reasonably fault-free data transmission with a data rate sufficient for audio streaming. We recommend Power Line Modems with bit rates of 85 or 200 MBit/s.

Glossary   📖
NETWORK TERMINOLOGY

Proxy Server

A proxy or proxy server is a computer in the network that makes data transfer quicker and more efficient and that can also increase security by deploying access control mechanisms. Usually, you do not find proxy servers in home networks. In such a case, you don't need to define a proxy address during the MMM network configuration.

The **MMM** allows the use of a proxy server.

Router (WLAN Router)

A central network device that establishes and manages the communication between the network devices.

Current devices increasing combine the function of the router with the function of an access point for wireless data communication. These combi-devices are often referred to as WLAN routers.

Normally, the (WLAN) router in a network takes on the function of the gateway to the outside world.

Server

A network device that makes data and services available for other devices in the network. A UPnP-AV server stores for example, audio and video media data and makes this data available to other devices, the streaming clients. Often, UPnP-AV servers also offer functions for the cataloguing and easy identification of medial content according to criteria such as artist, album name, genre, etc.

SSID

Service **S**et **Id**entifier / Network name. SSID designates the identification of a radio network that is based on IEEE 802.11. Each WLAN has a configurable, so-called SSID or **ESSID** (**E**xtended **S**ervice **S**et **ID**entifier), to identify the radio network.

It represents the name of the network. The SSID character string can be up to 32 characters long. It is configured in the base station (WLAN router / Access point) of a wireless LAN and defined on all the clients that should have access to it.

UPnP-AV

Universal Plug and Play – Audio Video
Network standard that makes media content, e.g. on PCs or NAS discs accessible in networks.

A UPnP-AV software must be installed on PCs /NAS storage so that the **MMM** can access the stored media data.

Below, you will find a short overview of UPnP software that is suitable for the different operating systems:

<u>**Windows**</u>:
Twonky Media Server
http://www.twonkyvision.de/
Windows Media Player *11*
http://www.microsoft.com/windows/windowsmedia/de/default.aspx

<u>**Linux**</u>:
Mediatomb
http://mediatomb.cc/
GmediaServer
http://www.gnu.org/software/gmediaserver/

WLAN (W-LAN, Wireless LAN)

Radio network. Network connection is done using radio waves in the 2.4 GHz frequency range. Radio networks are easy to install as no cables have to be laid but are often problematic and unreliable, particularly over longer transmission distances. In many cases, Power Line networks that also don't require any cabling are a better choice.

In each case, the installation of a network cable is the most fault-tolerant and problem free transmission technology. An additional point is that cabled networks don't produce any electro smog.

WPA

Wi-Fi **P**rotected **A**ccess (WPA)
WPA contains the architecture of WEP, but offers additional protection through dynamic keys that are based on the following (*Cipher*) standards:
- *Temporal **K**ey **I**ntegrity **P**rotocol* (TKIP)
- *Advanced **E**ncryption **S**tandard* (AES)

WPA offers **P**re- **S**hared **K**eys (PSK) for authentication or **E**xtensible **A**uthentication **P**rotocol (EAP) through IEEE 802.1x.

The **MMM** is based on the authentication PSK and supports both the WPA encryption TKIP and AES.

WEP

Wired **E**quivalent **P**rivacy (WEP) is the previously used standard encryption algorithm for WLANs. It should control access to the network as well as ensuring the confidentiality and integrity of the data. Because of various weak spots, the process is considered to be unsafe. For this reason, WLAN installations should use the more secure WPA encryption. See WPA.
With WPE authentication, a distinction is drawn between two processes:

Open

Open System Authentication is the standard authentication. The WEP key is used at the same time for authentication: Each client with the correct WEP key gets access to the network.

Shared

Shared Key Authentication is reputed to be the more secure version. In this case, authentication is done through the Challenge-Response authentication, with a secret key. However, the Challenge-Response process is also based on WEP and demonstrates the same weaknesses.

The **MMM** offers both *Open* and *Shared* WEP authentication.

Wi-Fi

Certificate for WLAN products that work according to IEEE802.11 standards and are compatible with other products.

CABLING
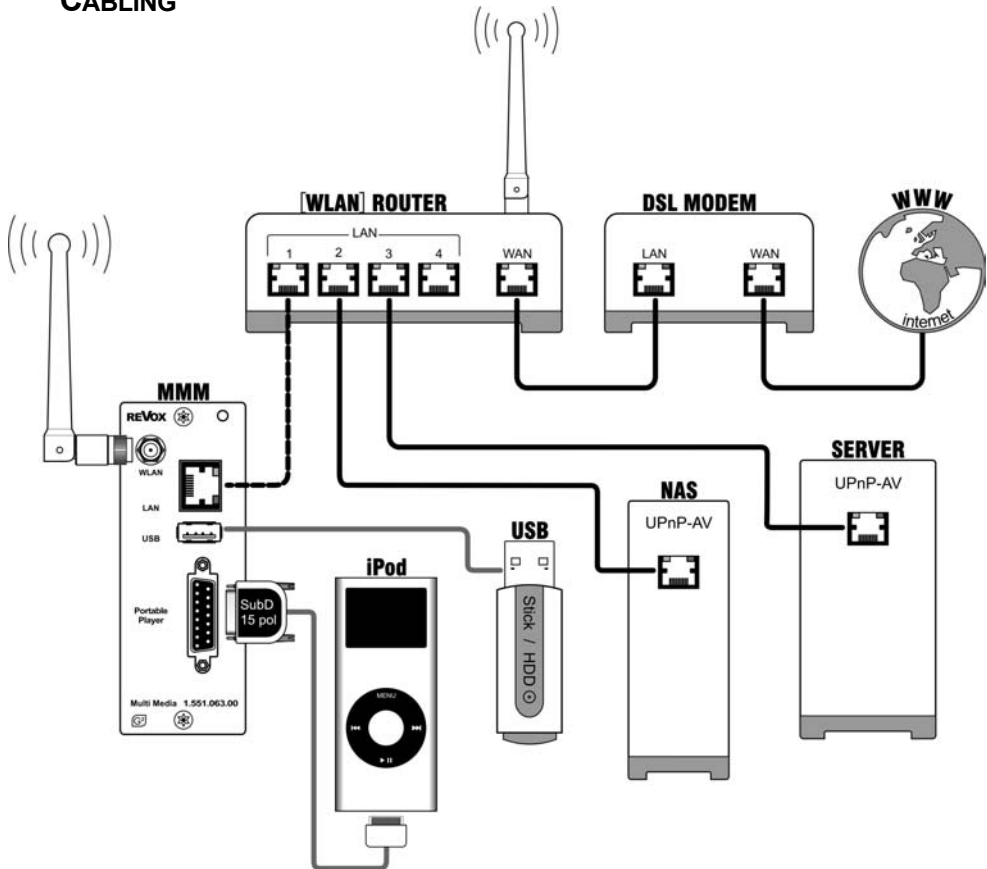
▬▬▬▬▬ if the communication between router (WLAN) and MMM
should be wireless, the dotted LAN connection may
not be in place.

NAS : Network hard disc / **N**etwork **A**ttached **S**torage Device

UPnP-AV : **U**niversal **P**lug a**n**d **P**lay – for **A**udio- / **V**ideo transfer
The MMM can only communicate with NAS or servers
that support the UPnP-AV standard, which was specially
developed for the streaming of audio and video content.

USB : USB mass storage, either a USB memory stick or
an external hard disc (with its own power supply)

SETUP **Multi Media Module**

The basic settings for the MMM are made in Setup.

Select **Media** from the **Source** menu and press and hold the **Setup** key for approx 2 seconds. Then select the **Source** softkey. The following display appears:

```
┌─────────────────────────────┐
│          Setup #1           │
│● Restart                    │
│■         IP Address       ■ │
│       192.168.98.195        │
│■        MAC Address       ■ │
│       00:1b:9e:87:d2:45     │
│■        Device Name       ■ │
│          My-MMM             │
│                    Menu ⮞   │
│Pure Analog  ▌▌▌▌▌    Wed 14:47│
└─────────────────────────────┘
```

All settings that are needed to set the MMM up are done on a total of eleven Setup pages, whereby only the relevant pages are shown. Setup pages that you don't need because of a setting you have made are hidden.

Example: Setup #6
Use DHCP?   YES

By selecting *YES* the settings on #7 and #8 in the IP and DNS area respectively are automatically made by the MMM. These Setup pages therefore, are not shown. You switch directly from Setup #6 to Setup #9.

Important advice

┌─────────────────────────────────┐
│ The following description for the │
│ Setup makes the assumption that │
│ there is a functioning network with │
│ router available and operational. │
│ │
│ There is no further explanation of │
│ the specialist terminology used in │
│ the individual chapters. You will find │
│ an extensive description of these in │
│ the previous chapter "Glossary │
│ NETWORK TERMINOLOGY" 📖 │
│ │
│ **If you have any questions about the** │
│ **setup and configuration of your** │
│ **network or Internet access, please** │
│ **refer to your System administrator** │
│ **or an IT specialist of your choosing.** │
└─────────────────────────────────┘

Input field in Setup [...]
Whenever you can make a setting within an input field in the following chapters, the area that is to be changed appears in the display in two square brackets **[...]**.

M51   Inputs at the M51 are made using the **rotary knob**. At the same time, the small red lamp (**Jog**) next to the rotary knob lights up.
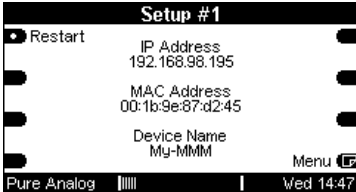
M10   Inputs at the M10 are made through the display panels from the M230 or M233 service programs. In the case, you use the fields Jog ±.
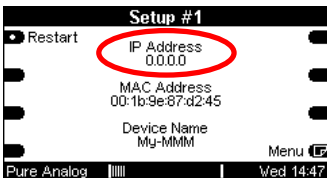
Setup #1

📖 **IP Address**

The first page shows the IP address that the MMM used to login to the network.

```
            Setup #1
▣ Restart     IP Address
            192.168.98.195

            MAC Address
            00:1b:9e:87:d2:45

            Device Name
            My-MMM
                         Menu ▣
Pure Analog  |||||        Wed 14:47
```

If the MMM could not login because of an incorrect Setup setting or because of a network problem, the following display appears in the **IP Address** area:

```
            Setup #1
▣ Restart    ⟨IP Address
             0.0.0.0⟩
            MAC Address
            00:1b:9e:87:d2:45

            Device Name
            My-MMM
                         Menu ▣
Pure Analog  |||||        Wed 14:47
```

In this case, you should check the network and/ or the settings you made.

ⓘ **Restart** ▣ Restart
The MMM must be restarted using the **Restart** softkey if Setup changes have been made, in order for the changes to be applied. This softkey is only available on Setup #1.
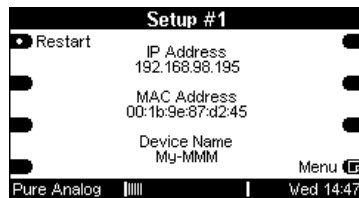
📖 **MAC Address**

Display of the MAC address that has been uniquely assigned to this MMM.

ⓘ This is important for logging in to the *Revox Internet Audio Portal (IAP)*

The MAC address must be defined **WITHOUT** the colons shown here, in order to log the MMM in to the *Revox Internet Audio Portal*, which offers the configuration of the Internet radio.

```
            Setup #1
▣ Restart     IP Address
            192.168.98.195

            MAC Address
            00:1b:9e:87:d2:45

            Device Name
            My-MMM
                         Menu ▣
Pure Analog  |||||        Wed 14:47
```

Example above:
MAC Address: 00:1b:9e:87:cb:58
Revox **IAP**:   001B9E87CB58

Device Name
The *Device name*, which the MMM identifies itself in the network is displayed in the lower area of the display field. The *Device Name* can be selected as required for each MMM. Setup #2 shows you how can generate a new name.

Setup #2

Device Name [...]

Each device on the network can have its own Device Name, as well as its individual MAC address.

Some network clients generate these device names automatically, which doesn't always result in a clear identification of the device in question.

Each MMM on the other hand, can be assigned its own, descriptive device name. This can be up to 11 characters long and is displayed in the headline of the MMM Main menu.

The [...] cursor is moved left and right with the ◀ Name and Name ▶ softkeys. The ■ Insert softkey inserts a character to the left of the [...] cursor. The Delete ■ softkey deletes the character where the [...] cursor is currently positioned.

The selected **Device Name** appears in the headline of the display and also in a list of network clients.
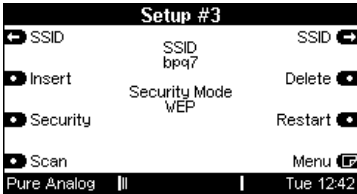
M51 Display view

M217 Display view

Setup #3

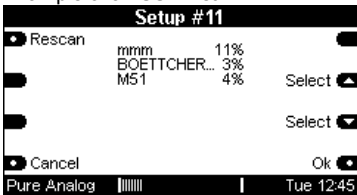### 📖 **SSID [...]**

Here, you define the name of your network's **SSID**.

```
              Setup #3
▣ SSID                        SSID ▣
              SSID
              bpq7
▣ Insert                    Delete ▣
           Security Mode
                WEP
▣ Security                 Restart ▣

▣ Scan                       Menu ▣
Pure Analog   ▌▌▌          ▌    Tue 12:42
```

The [...] cursor is moved left and right with the ▣ SSID and SSID ▣ softkeys. The ▣ Insert softkey inserts a character to the left of the [...] cursor. The Delete ▣ softkey deletes the character where the [...] cursor is currently positioned.

SSID search

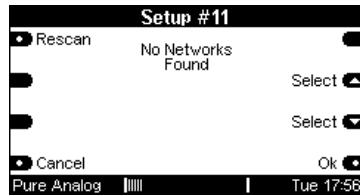Alternatively, you can execute a search with the ▣ Scan softkey, followed by a listing of all the networks found.

Example of an SSID list:

```
              Setup #11
▣ Rescan    mmm       11%
            BOETTCHER… 3%
            M51        4%     Select ▣

                             Select ▣

▣ Cancel                        Ok ▣
Pure Analog   ▌▌▌▌▌▌       ▌    Tue 12:45
```

The list is displayed in Setup #11. If, unexpectedly, the required network is not visible, it is possible that the Access Point (WLAN Router) is badly positioned or the

MMM aerial is not lined up correctly. Change the position and carry out a new search with the ▣ Rescan softkey.

If the required network is not found even though all conditions are fulfilled and the following display appears, it is possible that the cabled access (LAN) is already in place or the network name, (SSID), is hidden by the Access Point. In this case, the SSID must be entered manually, see **SSID**.

```
              Setup #11
▣ Rescan                        ▣
            No Networks
              Found
                             Select ▣

                             Select ▣

▣ Cancel                        Ok ▣
Pure Analog   ▌▌▌▌▌        ▌    Tue 17:56
```
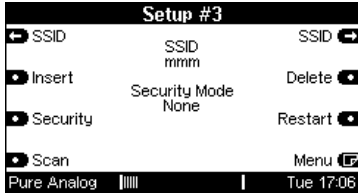
Select network

If the required network is visible, you select it with the Select ▣ Select ▣ softkeys and confirm your choice with the Ok ▣ softkey. You quit Setup #1 with the ▣ Cancel softkey. The existing setting in Setup #3 is retained.
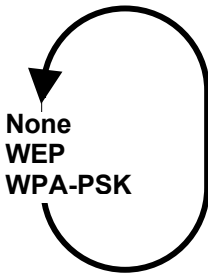
Setup #3

Security Mode

The encryption method can be selected or modified to that of the WLAN router with the **Security** softkey.

Setup #3		
⬅ SSID	SSID mmm	SSID ➡
⬤ Insert		Delete ⬤
⬤ Security	Security Mode None	Restart ⬤
⬤ Scan		Menu ⬛
Pure Analog ‖‖‖‖	‖	Tue 17:06

There are three options. You can make your choice from an endless loop using the ⬤ Security softkey.

None
WEP
WPA-PSK

⇨ **None** There is no encryption!

⇨ **WEP** 📖

⇨ **WPA-PSK** 📖

Setup #4 and #5 with restart

Further Setup pages (#4 for WPE settings and #5 for WPA-PSK settings) are now accessible, depending on the selected encryption method.

Carry out a restart of the MMM with the **Restart** softkey, after configuring Setup pages #4 and/or #5. Otherwise, the existing encryption method is retained.
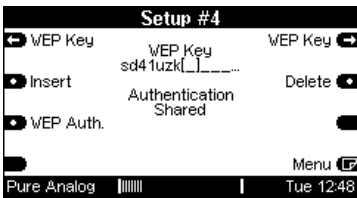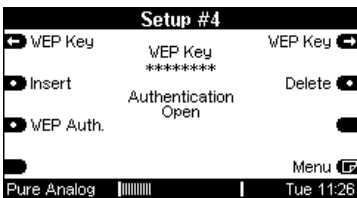
Setup #4 [⇨ WPE]

WEP Key [...]

WEP encryption is done using a **WEP key** that is defined once for the router and all WLAN devices.

Enter your WLAN network WEP key here.

The [...] cursor is moved left and right with the ◼ WEP Key and WEP Key ◼ softkeys respectively. The ◼ Insert softkey inserts a character to the left of the [...] cursor. The Delete ◼ softkey deletes the character where the [...] cursor is currently positioned.
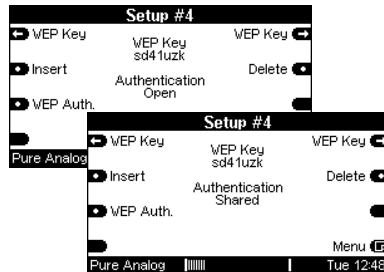
Your WEP key is only shown encrypted after a restart.

NOTE
A change in this menu requires a restart to be carried out.

📖 Authentication (WEP)

The MMM offers both the WEP authentications *Open* and *Shared*.

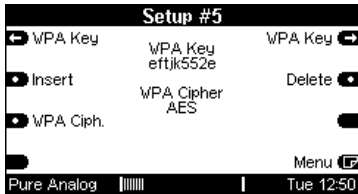The required authentication can be set through the ◼ WEP Auth. softkey.

NOTE
A change in this menu requires a restart to be carried out.

Setup #5 [⇨ WPA PSK]

WPA Key [...]

WPA encryption is done using a **WPA key** that is defined once for the router and all WLAN devices.

Enter your WLAN network WPA key here.

The [...] cursor is moved left and right with the ◻ WPA Key and WPA Key ◻ softkeys respectively. The ◻ Insert softkey inserts a character to the left of the [...] cursor. The Delete ◻ softkey deletes the character where the [...] cursor is currently positioned.
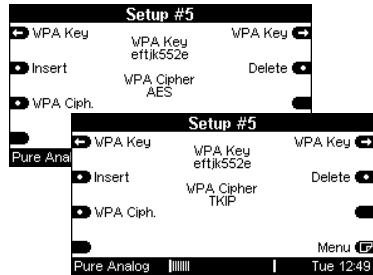
Your WPA key is only shown encrypted after a restart.
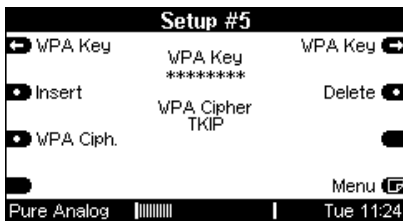
NOTE
A change in this menu requires a restart to be carried out.

📖 **WPA Cipher**

The MMM offers both *AES* and *TKIP* as WPA cipher (encryption standard).

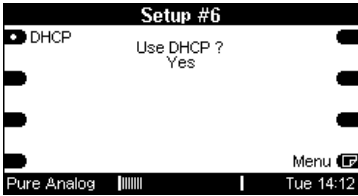The required encryption standard can be set through the ◻ WPA Ciph. softkey.

NOTE
A change in this menu requires a restart to be carried out.

Setup #6

Setup #7

 DHCP

Using the DHCP softkey, you can define whether logging in to the network should be done automatically **DHCP ⇨ Yes**, or whether the required setting will be made manually **DHCP ⇨ No**.

```
                Setup #6
 DHCP
              Use DHCP ?
                 Yes




                              Menu 
Pure Analog   |||||||              |    Tue 14:12
```

Setup pages #7 and #8, where the corresponding settings (IP, Gateway, DNS, etc.) can be made, are accessible if you select the setting **DHCP ⇨ No**. You get to these Setup pages with the Menu softkey.

You get directly to Setup page #9 where the Proxy setting can be made, if you select the setting **DHCP ⇨ Yes**.
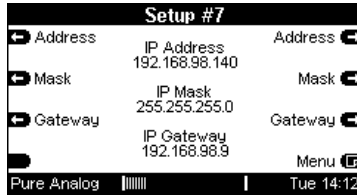
 IP-Address [...]

The 4 blocks of the IP address that the MMM should have, are set using the two **Address** softkeys.

```
                Setup #7
 Address                        Address 
              IP Address
             192.168.98.140
 Mask                              Mask 
               IP Mask
             255.255.255.0
 Gateway                        Gateway 
              IP Gateway
             192.168.98.9
                              Menu 
Pure Analog   |||||||              |    Tue 14:12
```

In a network of DHCP-enabled LAN devices, you must always ensure that these are **NOT** given the MMM's IP.

 IP Mask [...]

The 4 blocks of the IP subnet mask that the MMM should have, are set using the two **Mask** softkeys.
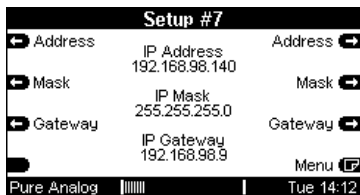
```
                Setup #7
 Address                        Address 
              IP Address
             192.168.98.140
 Mask                              Mask 
               IP Mask
             255.255.255.0
 Gateway                        Gateway 
              IP Gateway
             192.168.98.9
                              Menu 
Pure Analog   |||||||              |    Tue 14:12
```

NOTE
A change in this menupoint requires a restart to be carried out.
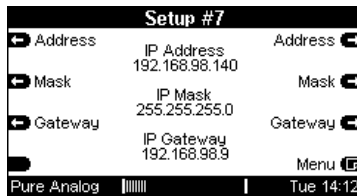
NOTE
A change in these two menupoints requires a restart to be carried out.

Setup #7

Setup #8

 IP Gateway [...]

Access to the Internet is defined through the two **Gateway** softkeys.

```
                    Setup #7
  Address                          Address 
            IP Address
            192.168.98.140
  Mask                               Mask 
            IP Mask
            255.255.255.0
  Gateway                         Gateway 
            IP Gateway
            192.168.98.9
                                    Menu 
Pure Analog  |||||||              |    Tue 14:12
```

If such a data exchange should be done outside the LAN, the IP Gateway must be configured according to the on-site requirements.
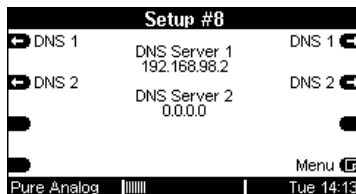
 DNS Server 1 / 2 [...]

The IP addresses of the DNS serves 1 and 2 can be entered using the **DNS 1** and **DNS 2** softkeys respectively.

```
                    Setup #8
  DNS 1                            DNS 1 
            DNS Server 1
            192.168.98.2
  DNS 2                            DNS 2 
            DNS Server 2
               0.0.0.0
                                    Menu 
Pure Analog  |||||||              |    Tue 14:13
```

NOTE
If the MMM is connected with a standard (WLAN) router, the IP address of this router can simply be entered here.

In this case, the DNS address of the second server (2) does not have to be configured.

NOTE
A change in these two menupoints requires a restart to be carried out.

A change in one of these two menupoints requires a restart to be carried out.

Setup #9

📖 **Proxy Server**

You can define whether communication should be done using a Proxy server with the ◼ Proxy softkey.

```
                    Setup #9
● Proxy
                   Use Proxy ?
                      Yes




                                      Menu ◪
Pure Analog   |||||||              |      Tue 14:13
```

The setting **Use Proxy ?** ⇨ **Yes**, makes Setup page #9 accessible, where the corresponding settings (Proxy address, Port) can be made. You get to this Setup page with the Menu ◪ softkey.

With the setting **Use Proxy ?** ⇨ **No**, Setup page #9 is skipped.

NOTE
A change in this menu requires a restart to be carried out.

Setup #10

Proxy Server Address [...]

The 4 blocks of the Proxy Server address is defined using the two **Proxy** softkeys.

```
                    Setup #10
● Proxy                            Proxy ●
                  Proxy Address
                     48.0.6.19
● Port                              Port ●
                   Proxy Port
                     [2]343

                                      Menu ◪
Pure Analog   |||||||              |      Tue 14:13
```
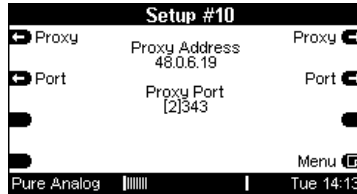
Proxy Server Port [...]

The corresponding Proxy Server port can be defined using the two **Port** softkeys.

```
                    Setup #10
● Proxy                            Proxy ●
                  Proxy Address
                     48.0.6.19
● Port                              Port ●
                   Proxy Port
                     [2]343

                                      Menu ◪
Pure Analog   |||||||              |      Tue 14:13
```
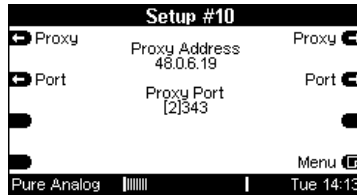
NOTE
A change in these two menupoints requires a restart to be carried out.

MMM Operation

Once all the required settings have been made in the MMM Setup, the Multi Media Module (MMM) can be called in the M51 Source menu and/or through the keys on the M217/M218 combination that were assigned through the Remote menu.

The manual always shows the M51 display view to illustrate working with the MMM. In terms of content, this display view is identical to that of the **M217** wall display. The only difference is the resolution and/or modified structure for the selection of menupoints.

The most important menus and selection options available for operating the MMM through an M217/M218 display combination are shown on the next pages.

The MMM displays the new source **Media** in the Source menu.

Source menu with Media
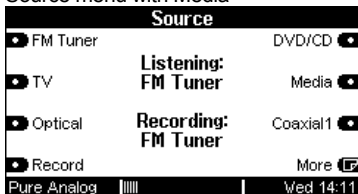
The following Start screen appears in the initial seconds after calling the source **Media**:

During this start phase, the MMM searches for connected devices (USB storage, iPod) and/or network devices (NAS) and the Internet access for using Internet radio.

Once the Start phase is completed, the selection options that have been found are listed.

Detailed explanations of these options follow in the next chapters and you will be shown how you can define the search for particular tracks, albums or radio stations.

M217/ M218 operation

Thanks to the sophisticated Revox Multiroom concept, it is possible to operate the MMM from each additional room that is connected to the Multiroom system.

■ M217
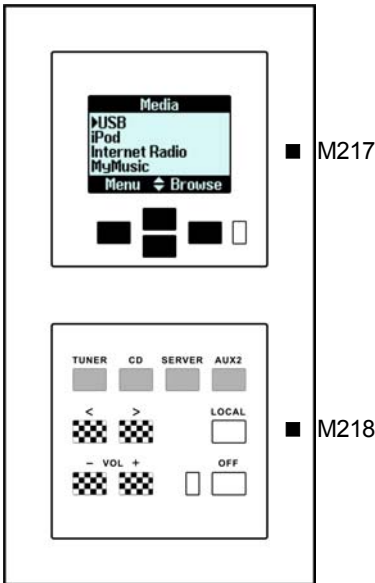
■ M218

▨ Call the MMM Main menu though the source keys on the M218 keyboard (grey keys) that you assigned in the *Remote* setup of the source, *Media*.

▨ In the same way you use the M218 keyboard to control the volume [**Vol ±**] as well as changing track [**<>**], assuming that the selection menu supports this, (chequered keys).

■ Further operation of the MMM is done through the softkeys on the M217 display, (black keys).

M217 Menu overview   Part ①

The following menu overview shows the most important M217 menus for operating the MMM. As the selection menus are very dependant on the choice of devices connected to the MMM (USB, iPod, clients, etc.) it is possible that the graphics differ from your M217 menus.

MMM Main menu

USB selection by artist

iPod selection

Internet Radio selection

M217 Menu overview   Part ②

Network client selection

Revox M37 MKII (Xi...
▶Artists
Genres
Years
Eras
   Menu ⬍ Browse

Menu: Now Playing

Now Playing
▶Back   MyMusic
Home
Status
+MyMusic
  Cancel ⬍ Select

+MyMusic selection

Now Playing

Add entry
to MyMusic?

No ⬍ Yes

You can add the radio station currently playing and/or the path to your favourite music tracks to the MyMusic category by pressing the **+MyMusic** softkey. We recommend however, only adding music storage paths to MyMusic that are always available.

ABC search

MMM
[A]BCDEFGHI
JKLMNOPQR
STUVWXYZ
0123456789
  Menu ⬍ Select

The alphabetically sorted selection allows a specific selection based on names that start with a particular letter. This can be names of folders, titles or radio stations.

Info window

Now Playing
ABBA

Super Trouper
Winner Takes It All
  Menu ⬍ Home

The **Info** softkey shows the status of the currently selected source. In the example shown on the left, the track *The Winner Takes It All* by *ABBA* from the album *Super Trouper* is playing.

Menu selection

MMM
▶Back   MyMusic
Home
Info
ABC...
  Cancel ⬍ Select

The **Menu** softkey opens the navigation or control page with the selection: **Back** , **ABC...**, **Home**, (**Info**), **MyMusic**.
You will find a functional description for these selection options on the next page, chapter *General control softkeys*.

General control softkeys

Softkey **ABC...**
The alphabetically sorted selection allows a specific selection based on names that start with a particular letter. This can be names of folders, titles or radio stations. The ABC search can only be used with sorted lists. The following message appears with unsorted lists:

„unsorted list..."

Softkey **Back**
This key returns you to the next highest menu level.

Softkey **Browse**
The **Browse** softkey opens a folder or a category and takes you to the next selection level.

Softkey **Home**
Returns you to the Main menu.

Softkeys **Page ⬍**
Page up/down within a list.

Softkeys **Select ⬍**
Line up/down within a list.

Softkeys **Previous/ Next**
Scroll to next or previous track or radio station

Softkeys **+MyMusic**
You can add the radio station currently playing and/or the path to your favourite music tracks to the MyMusic category by pressing the **+MyMusic** softkey. We recommend however, only adding music storage paths to MyMusic that are always available. e.g. a path to a permanently connected USB hard disc.

Please do not confuse this with the *Favorites* softkey that calls an existing Internet Radio Favorites list.

NOTE

The MMM is purely a reproduction medium that plays the content of different media such as USB storage, iPod, Internet radio, etc. The MMM cannot modify the content of these media or delete parts or add new items.

Info - Status overview

The **Info** softkey shows the status of the currently selected source.

In the example shown below, the track *When I Kissed The teacher* by *ABBA* from the Album *Arrival* is playing. This title was stored with a data rate of 192 Kbps.
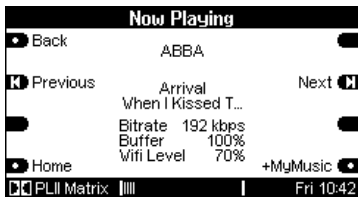
Bit rate [kpps]
The data rate with which the selected radio station transmits or a track was compressed.

Buffer [%]
The filling level of the MMM data buffer that is used to balance out MMM fluctuations in the data streaming. The buffer display should always be 100%. If it reaches 0%, playback is stopped until data is received again.

Wifi Level [%]

The Wifi level displays the strength of the Access point reception. If this should get too low, you may have to reposition it.
The Wifi level does not indicate anything about the speed of the Internet access.

The Wifi level is displayed permanently, even in the case of sources that do not receive their data over the WLAN, e.g. a USB hard disc.

ⓘ
Walls, atmospheric pressure and humidity affect the quality of the WLAN wireless connection, as well as the positioning of the components.

USB

The **USB** menu enables access to content on connected USB storage media (USB Memory stick*, external USB hard disc* with its own power supply).
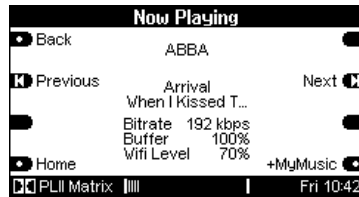
Media		
● Info	▶USB	Browse ●
	iPod	
▲ Page	Internet Radio	Select ▲
	NAS-Technik	
	Revox M37 MK…	
▼ Page	Revox M37 MKII …	Select ▼
	MyMusic	
● MyMusic		ABC… ◉
▣ PLII Matrix ▐▐▐▐		Fri 11:05

All tracks and music folders are displayed after the USB selection is made. You can make your selection using the **Page** and **Select** navigation softkeys. The **Browse** softkey opens folders containing more than one track.

USB		
● Back	▶ABBA	Browse ●
	Al Green	
▲ Page	Allman Brothers…	Select ▲
	Anastacia	
	B.B. King & Frien…	
▼ Page	BA	Select ▼
	Billy Joel	
	Bob Dylan	
● Home		ABC… ◉
Pure Analog ▐▐▐▐▐▐		Tue 14:19

The **Play** softkey only appears once a track is available for selection.

Arrival		
● Back	▶01 When I Kiss…	Play ●
	02 Dancing Que…	
▲ Page	03 My Love, My …	Select ▲
	04 Dum Dum Did…	
	05 Knowing Me, …	
▼ Page	06 Money, Mone…	Select ▼
	07 That's Me.mp3	
	08 Why Did It Ha…	
● Home		ABC… ◉
▣ PLII Matrix ▐	▐	Wed 13:47

Press **Play** to start the playback of the title:

Now Playing		
● Back	ABBA	●
▣ Previous	Arrival	Next ▣
	When I Kissed T…	
●	Bitrate 192 kbps	●
	Buffer 100%	
	Wifi Level 70%	
● Home		+MyMusic ◉
▣ PLII Matrix ▐▐▐▐	▐	Fri 10:42

You can scroll to the preceding or the following track within the folder / album respectively, using the **Previous** and **Next** softkeys.

ⓘ
The track names are defined by the names of the music files. ID3 tags are not supported for selection.

*with FAT16/32 formatting

iPod

The **iPod** menu allows access to content on the connected iPod.

```
                    Media
🔘 Info                                Browse 🔘
            USB
            ▶ iPod
🔼 Page      Internet Radio            Select 🔼
            NAS-Technik
            Revox M37 MK...
🔽 Page      Revox M37 MKll ...        Select 🔽
            MyMusic
🔘 MyMusic                              ABC... 🔘
▶◀ PLII Matrix ▏▎▎▎              ▏         Fri 11:05
```

The selection options in the iPod menu are predefined by the iPod and are not handled by the MMM controller. For this reason, it is possible that new or modified selection options will be added in the future. At the time of printing this manual, the following selection criteria were available:

- Playlists
- Artists
- Albums
- Songs
- Genres
- Composers
- Audiobooks

You can make your selection using the **Page** and **Select** navigation softkeys. The individual selection criteria are selected with the **Browse** softkey.

```
                  ReVox iPod
🔘 Back                                 Browse 🔘
            ▶ Playlists
            Artists
🔼 Page      Albums                     Select 🔼
            Songs
            Genres
🔽 Page      Composers                  Select 🔽
            Audiobooks
🔘 Home                                   ABC... 🔘
Pure Analog ▏▎▎▎▎▎▎▎▎         ▏         Tue 15:57
```

Press **Play** to start the playback of the title:

```
                 Now Playing
🔘 Back                                      ▬
               David
            Clayton-Thomas
⏮ Previous      Aurora                   Next ⏭
            Don't Explain
               Bitrate
               Buffer      100%
               Wifi Level  70%
🔘 Home                                      ▬
▶◀ PLII Matrix ▏▎▎▎               ▏        Wed 15:39
```

You can scroll to the preceding or the following track respectively within the list / album, using the **Previous** and **Next** softkeys.

NOTE

iPod name
The headline of the display shows the name of the iPod that was assigned to it with *iTunes*, in this case *ReVox iPod*.

Charging the iPod battery 🔋
Your iPod's battery is charged up while it is being used. No charging occurs however, while the M10/ M51 is in standby mode. Permanent charging is possible using the optional Revox Docking station that will be available in 2009.

28

Internet Radio

The selection **Internet Radio** gives you access to thousands of radio stations available from around the world. As well as the linguistic diversity available, you can also make specific selection based on particular musical directions (**Genres**).
Podcasts offer even more individuality. Podcasts are broadcasts such as news programs, magazine shows, crime dramas, comedies, etc. that are started when you select them. You don't switch onto a program that is currently running as is usual when listening to (internet) radio. You actively start the playback of a program.

Starting Internet Radio
Select the menupoint **Internet Radio** in the Main menu.

The current selection options are displayed:

The selection options in the Internet Radio menu are being constantly been adapted to meet customer requirements. For this reason, it is possible that new or modified selection options will be added in the future. At the time of printing this manual, the following selection criteria were available:

- Favorites
- Added Stations
- Location
- Genre
- Podcasts By Location
- Podcasts By Genre
- New Stations
- Most Popular Stations

➲ **Favorites**

Your favourite radio stations or groupings that you have previously organised through *Revox Internet Audio Portal* are listed under *Favorites*. How to do this and what you have to take into account is described in the chapter *Setting up Internet Radio* on page 33.

➲ **Added Stations**

The selection *Added stations* lists those radio stations that you added yourself in the *Revox Internet Audio Portal* (see chapter **IAP**, page 34), as these are not listed by default. You need the URL, the Internet path, of the operator of the radio station to be able to add a new Internet radio station in the IAP. You will usually find this on the provider's homepage or you can display them in a media player.

➲ **Location**

Selection of radio station by countries. Searching for the required radio stations is made quick and specific through the classification in Continents ↘ Countries ↘ Genre.

➲ **Genre**

Listing of radio stations based on certain music directions such as rock, jazz, folk, etc. Within the genre, the individual radio stations are either listed alphabetically (*All Stations*) or by the countries offering this type of music.

➲ **Podcasts By Locations**

Listing of podcast transmissions based on the country/continent where the provider is located.

➲ **Podcasts By Genres**

Listing of podcast transmission based on the genre, which these transmissions are assigned to.

➲ **New Stations**

New radio stations are being added somewhere in the world every day. As you won't want to go to the effort of searching for new radio station arrivals every day yourself, these are listed in the selection *New Stations*.

➲ **Most Popular Stations**

Listing of the Internet radio stations that are currently being listened to the most.

UPnP-AV Server

Network servers that support the UPnP-AV standard can be accessed through the network (LAN or WLAN). The most usual instance of such a server is a NAS hard disc.
The name of a media server is defined at the server itself.

```
┌─────────────────────────────────┐
│            Media                │
│ ● Info      USB          Browse ●│
│             iPod                │
│ ▲ Page      Internet Radio  Select ▲│
│             ▶NAS-Technik        │
│             Revox M37 MK...     │
│ ▼ Page      Revox M37 MKII ... Select ▼│
│             MyMusic             │
│ ● MyMusic                ABC... ◉│
│ ◫ PLII Matrix ▐▌▌▌       ▐   Fri 11:05│
└─────────────────────────────────┘
```

It is however possible to use a normal PC as a network server. This though requires a UPnP-AV software so that the MMM can find a play stored music files. Such a software is offered, for example, by the company *Twonky Vision* with the software *TwonkyMusic*.

The way a menu from such a UPnP-AV server looks can be very different, depending on the configuration.

Menu from the Revox M37 MK2 Music server:

```
┌─────────────────────────────────┐
│         Revox M37 MKII ...      │
│ ● Back      ▶All Albums    Browse ●│
│             Artists             │
│ ▲ Page      Genres        Select ▲│
│             Years               │
│             Eras                │
│ ▼ Page                    Select ▼│
│ ● Home                   ABC... ◉│
│ Pure Analog ▐▌▌▌▌▌▌▌      ▐  Tue 15:58│
└─────────────────────────────────┘
```

Menu from the Revox NAS server in the development department:

```
┌─────────────────────────────────┐
│            Musik                │
│ ● Back      ▶Nach Album    Browse ●│
│             Nach Genre          │
│ ▲ Page      Nach Interpret  Select ▲│
│             Benutzerdateien     │
│             Wiedergabeliste     │
│ ▼ Page      Sämtliche Musik Select ▼│
│ ● Home                   ABC... ◉│
│            ▐▌▌▌▌▌▌        ▐  Thu 16:48│
└─────────────────────────────────┘
```

You can make your selection using the **Page** and **Select** navigation softkeys, as with all other media content. The individual selection criteria are selected with the **Browse** softkey.

Important:

Folder name **Music**

The MMM can only find your music tracks on the media server if they are located in a folder called **Music**. Other folder names are not recognised.
This folder can be displayed with another name than Music in the media server MMM folder. This is very much dependant on the settings and the various models of these media servers. In the example shown above, the network folder *Music* is shown in the display headline as **Musik**.

31

MyMusic

The **MyMusic** selection on the start page covers all your favourites that you have added through the MMM menu. This can include paths to music tracks on USB storage media or network hard discs or also favourite radio stations. We recommend however, only adding music content storage paths to MyMusic that are always available.

Select MyMusic directly through the **MyMusic** softkey or go through the menu with the **Browse** softkey.

```
                Media
● Info                          Browse ●
           USB
           iPod
● Page     Internet Radio       Select ▲
           NAS-Technik
           Revox M37 MKII ...
● Page     Revox M37 MKII ...   Select ▼
           ▶ MyMusic
● MyMusic                          ABC... ◎
◯◯ PLII Matrix ‖‖‖           ‖      Fri 10:39
```

A list appears with previously stored favourite music tracks and/or radio stations. Each entry that is listed here has been added with the **+MyMusic** softkey.

```
               MyMusic
● Back                           Play ●
           ▶ Bayern 3 Live
           Radio ZNIN
● Page     PolskaStacja 80...   Select ▲
           November Rain
           Christy Moore - ...
● Page     Bayern 1 Live        Select ▼
           SWR1 BW
           Kanal 6 Norge
● Home                          Remove ●
◯◯ PLII Matrix ‖‖‖           ‖      Fri 10:40
```

You can make your selection using the **Page** and **Select** navigation softkeys. You start the playback with the **Play** softkey.

ⓘ **Favorites - Internet radio**
You will find the second selection of favourites with the name **Favorites** in the Internet radio area. This selection can only be organised through the *Revox Internet Audio Portal* at a PC and it contains Internet radio stations. How you organise them is described in the next chapter.

- see Internet Radio setup-

Deleting a MyMusic entry

Entries / paths can be deleted from the MyMusic list with the **Remove** softkey. The actual music track remains on the storage medium. Only the link is deleted.

Please note: Delete track

Before deleting the music track from a storage medium (USB, NAS, etc.), you should first remove the path to this track with **Remove**. Otherwise, the entries continue to point to tracks that in fact no longer exist on the media storage.

M208 Operation - MyMusic

There is a separate mpi file called *Revox Multimedia Module* in the *M208 Project Manager* device library, for controlling the MMM in the *MyMusic* area.

As the description in this manual relates to the system software V2.00+, it is important to use the corresponding *M208 Project Manager V2.01* or higher. The MMM doesn't support older versions.

You can transfer all entries in the *MyMusic* area to the M208 remote control with the MMM user interface.

After synchronising, select the required *MyMusic* entry using the navigation compass and confirm this with the **OK** key. Shortly after pressing the OK key, playback of the corresponding track or Internet radio program will start.

ⓘ **Multiroom operation**
This control option can be used both in the main room and in all additional rooms.

The are several navigation options to help you find the desired entry in the list in the shortest time:
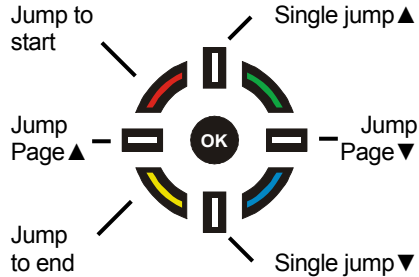
A synchronisation with the M208 should always be carried out if you modify any of the *MyMusic* entries in the MMM by adding new ones or deleting existing ones. Otherwise, wrong *MyMusic* entries will be called.

ⓘ **Synchronisation with the M208**
How to carry out a synchronisation with the M208 remote control is described in the chapter *Synchronising MyMusic.*

M208 Remote control

Basic settings

Switching M51/M219 off

SETUP   **OFF**

Media
10 Hit Radio An...
11 Schwarzwal...
▶12 Help The Poor
13 Radio 7
14 Celtic Music ...

| TUNER | DVD | TV | SERVER |
| SAT | VIDEO | AUDIO | LIGHT |

Sound setting

Volume control

Mute

| SOUND | VOL + | CH + |
| MUTE- | VOL - | CH - |

**Navigation
(in the menu)**

Confirm/Execute

MENU   MORE

OK

EXIT   ENTER

Jump forwards/back

▶   ■   ❚❚   REC

❚◀   ▶❚   ◀◀   ▶▶

**Number pad for
direct access**

1	2	3
4	5	6
7	8	9
*	0	– –

ReVox
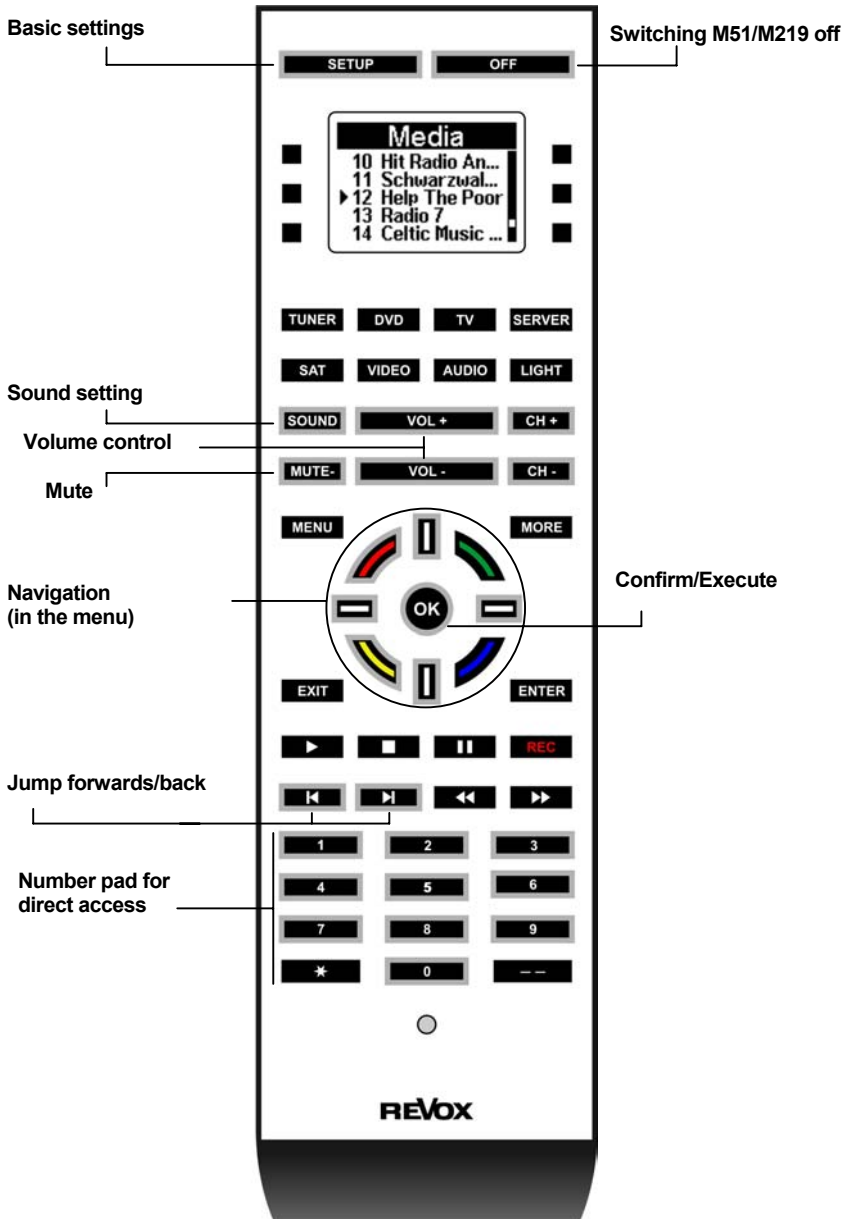
Synchronising MyMusic

The following display appears the first time the MMM is started on the remote control:

Media
No Entries
Found

The **MyMusic** selection has not yet been synchronised in this constellation.

Connect the M208 with the supplied USB cable to the M208 Link interface for synchronisation. The Link interface for its part is connected to the M10 / M51 through a cable to the M Link.
Once the connection is established, select the source key at the M208 where the MMM controller is stored and press the **SETUP** key. Confirm the setting ▸ **Synchronize** with the **OK** key.

Media
▸ **Synchronize**
Setup

Important advice
The M208 remote control must not be operated while synchronisation is running.

Synchronisation now starts and only takes a few seconds. When the synchronisation is complete, the following display appears:

Media
Syncronizing
Module in Slot 6
Done.

Now, all stored *MyMusic* entries appear in the display the next time the MMM controller is called. The display order is determined by the order they were stored in the MMM.

Media
▸**01 Northside R...**
02 Munich´s Ha...
03 Radio 2Day
04 Antenne Ba...
05 Radio Hambu...

ⓘ
A synchronisation with the M208 should always be carried out if you modify any of the *MyMusic* entries in the MMM by adding new ones or deleting existing ones. Otherwise, wrong *MyMusic* entries will be called.

Setting up Internet Radio

The list of radio stations that appears in the **Internet Radio** category in your Multimedia Module is made available by a service provider and transferred to your MMM through the Internet connection. You can extend and edit the *Favorites* and *Added Stations* lists in the *Internet Radio* menu in the **Online Services** category as you wish, through Revox's Internet Portal.

This is done as follows: Open your Internet Browser and call the Revox Homepage under:
www.revox.de   Germany
www.revox.ch   Switzerland
www.revox.com   English

Under the option "Online Services", call the Revox **Internet Audio Portal**, where you can register and configure your MMM.

To the *Internet Audio Portal* ⇨

Internet Audio Portal - IAP

You can login (*Member Login*) if your MMM has already been registered in the **I**nternet **A**udio **P**ortal (**IAP**). If this is not the case, you can register with ⇨

How to do this is described in the next chapter: *Initial login*

Revox Internet Audio Portal start page

Initial login

You must register your MMM in order to be able to use the **IAP** service. Registration is done using your MMM's MAC address, your e-mail address and password that you define for yourself.
When logging in for the first time, please enter the **MAC** address of your MMM. This uniquely identifies your MMM. You will find the MAC address in the MMM Setup menu on **Page #1**.

Press *Source* softkey.
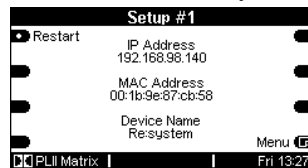
e MAC address is made up of six pairs of characters, e.g.:
00:1b:9e:87:cb:58. Don't enter the separators when inputting the address. For the example shown above, the correct input in the IAP would be: **001B9E87CB58**

IAP Registration page

NOTE
If you are using several MMMs, each one has to be registered individually.

Register for online newsletter
If required, you can subscribe to the free-of-charge Revox Newsletter, which is sent by e-mail. To do this, you just have to complete the corresponding fields and set the checkbox in the corresponding field.

You can transfer a one-time generated **Favorites** list from one MMM to all other MMMs.
This is also done in the IAP under the section:

My account
   ⇨ My preferences

Managing the Revox IAP

Once you have registered, you can make a selection for the extensive pool of radio stations and add it to the favourites list (*Favorites*), add new radio stations to *Added Stations* or search for podcasts.

The transfer of the lists to your MMM happens automatically over the Internet connection. Shortly after editing your list or adding new stations in the IAP, you will find these changes on your MMM.

Currently, you can make selections on the Internet Audio Portal according to the following criteria:

> *Browse Stations*
> By location
> By genre
> By language
> New stations

> *Browse Podcasts*
> By location
> By genre

Radio station listing in the IAP

39

Adding radio stations to favourites

Clicking on the 💙➕ in the station list adds the corresponding radio station to the favourites in the MMM's *Internet Radio* selection.

This opens the window shown on the right where you can decide which favourite group the radio station should be added to or if you want to create a new favourites group for it.

Favourite stations.   Close

Choose a favourites group and click "Go" to add the Station **BBC Radio 2 UK Only** to your Favourites.

Create new favourites group with your station

[   ]   Go

🌐 Internet   🔍 100%   ▼

Previous page   Next page

View by:	All Stations (592) ▾	Sort by:	Alpha A-Z ▾		
Station name		**Location**	**Genre**		**Stream**
▶ 💙➕ BBC Radio 1Xtra		London United Kingdom	Hip Hop/R&B		WMA 64K
▶ 💙➕ BBC Radio 2 UK Only		London United Kingdom	Variety		WMA 64K
▶ 💙➕ BBC Radio 3 UK Only		London United Kingdom	Classical/Jazz/World		WMA 64K
▶ 💙➕ BBC Radio 4 LW UK Only		London United Kingdom	News Talk		WMA 64K
▶ 💙➕ BBC Radio 4 UK Only		London United Kingdom	News Talk		WMA 64K
▶ 💙➕ BBC Radio 5Live International		London United Kingdom	News/Sports		WMA 48K

Network: Questions & Answers

NETWORK QUESTIONS / TIPS

NETWORK IS OK BUT THERE IS NO SOUND.

You should be aware that the MMM cannot support all data formats that are available on the Internet. It can occur that a station cannot be played. See *Technical data*

Other reasons why your Internet Radio doesn't play:

- Not all radio stations broadcast 24/7
- Radio stations may not be available any more
- The Revox equipment is muted
- The provider's (Radio Sender/ Provider) server capacity is fully utilised

Transmission within your network breaks down because:
- (Internet) network problems
- Server capacity fully utilised

The connection is lost after a few minutes:

This is a system-based characteristic of the UPnP standard. Active communication starts on a port with a number higher than 1024 and then changes regularly during operation. Not all firewall programs recognise this knocking on different doors as a continuous connection. Depending on the configuration, the firewall may decide against an unknown client in case of doubt.
Depending on the firewall software, this can be resolved through the following actions:

- By using a fixed IP and without DHCP, define the MMM as a so-called Trusted Host, i.e. a device from which all communication is considered to be trustworthy.
- Allow the server to accept incoming and outgoing communication with the MMM over ports 1024 - 65535.

Activate the exception setting for "UPnP Framework", e.g. Windows XP Firewall or activate "Permit UPnP communication".

The MMM finds my Access Point, however my computer is not displayed.

- Make sure you have installed a UPnP server on your computer and that this is activated. Depending on the amount of data and the software, it can take a few seconds before the option appears as a selection on the MMM.
- You have activated a MAC address filter on your router. In this case, add the MMM MAC address to you router configuration. You will find this on Setup page #1.
- Your router only assigns fixed IPs. Deactivate DHCP and enter a fixed IP address both in the MMM and the router.

My Access Point's SSID is not listed.

- The MMM can only find your Access Point if it is within range. Reduce the distance to the Access Point and try again.
- Depending on the configuration, the router's SSID may be hidden. If this option is activated, the SSID must be entered manually on page #3 of the MMM Setup menu.

A lot of Access Points are displayed that are unknown to me.

If several Access point, for example those installed in neighbouring buildings are available to the MMM, these will also be listed. Select your Access Point and continue with the configuration.

The MMM indicates to me that my network is encrypted.

Your network is protected against external attacks with an encryption (WEP / WPA). Enter your key in the MMM Setup so that the MMM is identified as "User" in the network.

Where do I get my key from?

If you installed your network yourself, you will have defined it as part of that work. Otherwise, you will get it from your System Administrator

Can other data on my network hard disc or server by read or viewed?

No, the MMM can only receive data that is released by the UPnP server. In this way, the MMM only accesses your files. Other data on your server is not transferred and cannot be viewed.

NETWORK QUESTIONS / TIPS

Network activity?
Two LEDs are integrated in the MMM network socket, which display bus activity. If the network connection is working, the orange LED lights up permanently while the flashing of the green LED indicates that data exchange is taking place.

Point-to-Point
If the MMM is connected directly to a PC without using a router, cabling is done using a **Cross Over Cable**.

Distribution with Router
If the MMM is connected to the network through a router, a **Patch Cable** (1:1) is to be used.

Network setting?
Have all the MMM Setup settings been correctly applied and has a restart been carried out following any changes?

Ping test?
Does the MMM respond to a Ping attempt? Is it recognised in the network? The MMMs deployed or assigned IP address can be seen on Setup page #1.

NETWORK QUESTIONS / TIPS

Encryption protocol?
Is the implemented encryption protocol (WEP, WPA-SK) and/or the corresponding key correct?

My WLAN connection?
Was my Access Point / WLAN router selected or one from a neighbouring system selected, which because of its locational proximity, can also be received?

Technical data

Playable formats

Streaming Client[1]	AAC, FLAC, MP3 (cbr +vbr), OGG-Vorbis, WAV WMA,
Playlists	ASX, M3U, PLS
Internet Radio Data Base	Revox Internet Audio Portal (Online Services)
Supported Media server	Connect Server (WMDRM10)
Supported Media server	UPnP-AV 1.1 and DLNA compatible servers Microsoft Windows Media

Interfaces

Ethernet 10/100, WLAN 802.11b/g, USB[2] 2.0, iPod

Audio data

Distortion factor	< 0.006 % (Streaming Client mp3/ 192 kps)
Unweighted signal-to-noise ratio	> 95 dB (Filter 100Hz, 22 kHz)
Channel separation	> 95 dB (1 kHz)

WLAN

Operating distance	300m open space 30 - 100m in buildings (depending on building design)

[1] The audio formats listed must be supported by the UPnP server so that the
   MMM can play them. It is not enough for the audio files simply to exist on the server.
[2] Only suitable for USB hard discs with their own power supply or memory sticks.

E&OE

Warranty

Warranty covers a period of 24 months from the purchasing date.

Your specialist dealer is your first contact if you need service help. If he can't give you the help you need, send the MMM module carriage free and without any accessories to your national Sales Office. Please supply a complete description of the fault together with your address.

Scope of delivery

- Multi Media Module
- iPod adapter cable (0.8m)
- WLAN aerial
- Operating manual

Note COPYRIGHT

iPod is a trademark of Apple Inc. 1 Infinite Loop, MS60-DR, Cupertino, California, USA, 95014. All rights reserved.

The information contained in this document can change at any time and without notice and represents no commitment on the part of the seller. No guarantee or representation, direct or indirect, is given in respect of quality, suitability or validity for a specific deployment of this document. The manufacturer reserves the right to change the content of this document and/or the corresponding products at any time, without commitment to inform any person or organisation. Under no circumstances is the manufacturer liable for damages of any kind that result from the deployment of or the inability to deploy this product or documentation, even if the possibility of such damages is known. This document contains information that is subject to copyright.